

APPENDIX 1 – Minimum Technical Requirements for New Development and Redevelopment for Western Washington

This Appendix is an excerpt from the 2005 Stormwater Management Manual for Western Washington

Exemptions

Forest practices:

Forest practices regulated under Title 222 WAC, except for Class IV General forest practices that are conversions from timber land to other uses, are exempt from the provisions of the minimum requirements.

Commercial agriculture:

Commercial agriculture practices involving working the land for production are generally exempt. However, the conversion from timberland to agriculture, and the construction of impervious surfaces are not exempt.

Road Maintenance:

The following road maintenance practices are exempt: pothole and square cut patching, overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage, shoulder grading, reshaping/regrading drainage systems, crack sealing, resurfacing with in-kind material without expanding the road prism, and vegetation maintenance.

The following road maintenance practices are considered redevelopment, and therefore are not categorically exempt. The extent to which the manual applies is explained for each circumstance.

- Removing and replacing a paved surface to base course or lower, or repairing the roadway base: If impervious surfaces are not expanded, Minimum Requirements #1 - #5 apply. However, in most cases, only Minimum Requirement #2, Construction Stormwater Pollution Prevention, will be germane. Where appropriate, project proponents are encouraged to look for opportunities to use permeable and porous pavements.
- Extending the pavement edge without increasing the size of the road prism, or paving graveled shoulders: These are considered new impervious surfaces and are subject to the minimum requirements that

are triggered when the thresholds identified for redevelopment projects are met.

- Resurfacing by upgrading from dirt to gravel, asphalt, or concrete; upgrading from gravel to asphalt, or concrete; or upgrading from a bituminous surface treatment (“chip seal”) to asphalt or concrete: These are considered new impervious surfaces and are subject to the minimum requirements that are triggered when the thresholds identified for redevelopment projects are met.

Underground utility projects:

Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics are only subject to Minimum Requirement #2, Construction Stormwater Pollution Prevention.

All other new development is subject to one or more of the Minimum Requirements (see Section 2.4).

Definitions Related to Minimum Requirements

- **Arterial** - A road or street primarily for through traffic. A major arterial connects an Interstate Highway to cities and counties. A minor arterial connects major arterials to collectors. A collector connects an arterial to a neighborhood. A collector is not an arterial. A local access road connects individual homes to a collector.
- **Effective Impervious surface** - Those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system. Impervious surfaces on residential development sites are considered ineffective if the runoff is dispersed through at least one hundred feet of native vegetation in accordance with BMP T5.30 – “Full Dispersion,” as described in Chapter 5 of Volume V.
- **Highway** – A main public road connecting towns and cities
- **Impervious surface** - A hard surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A hard surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly

impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for purposes of determining whether the thresholds for application of minimum requirements are exceeded. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling.

- **Land disturbing activity** - Any activity that results in movement of earth, or a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, filling, and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered a land disturbing activity. Vegetation maintenance practices are not considered land-disturbing activity.
- **Maintenance** - Repair and maintenance includes activities conducted on currently serviceable structures, facilities, and equipment that involves no expansion or use beyond that previously existing and results in no significant adverse hydrologic impact. It includes those usual activities taken to prevent a decline, lapse, or cessation in the use of structures and systems. Those usual activities may include and replacement of dysfunctioning facilities, including cases where environmental permits require replacing an existing structure with a different type structure, as long as the functioning characteristics of the original structure are not changed. One example is the replacement of a collapsed, fish blocking, round culvert with a new box culvert under the same span, or width, of roadway. For further details on the application of this manual to various road management functions, please see Section 2.2.
- **Native vegetation** – Vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple, and vine maple; shrubs such as willow, elderberry, salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.
- **New development** - Land disturbing activities, including Class IV - general forest practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of impervious surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development.

- ***Pollution-generating impervious surface (PGIS)*** - Those impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use; industrial activities (as further defined in the glossary); or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall. Erodible or leachable materials, wastes, or chemicals are those substances which, when exposed to rainfall, measurably alter the physical or chemical characteristics of the rainfall runoff. Examples include erodible soils that are stockpiled, uncovered process wastes, manure, fertilizers, oily substances, ashes, kiln dust, and garbage dumpster leakage. Metal roofs are also considered to be PGIS unless they are coated with an inert, non-leachable material (e.g., baked-on enamel coating).

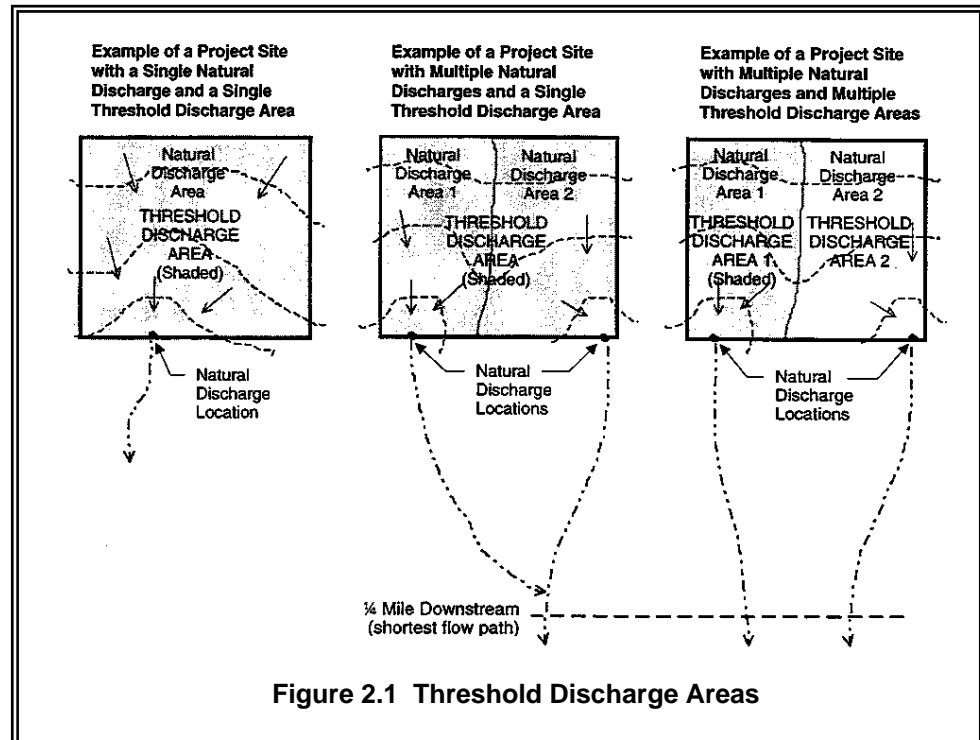
A surface, whether paved or not, shall be considered subject to vehicular use if it is regularly used by motor vehicles. The following are considered regularly-used surfaces: roads, unvegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, unfenced fire lanes, vehicular equipment storage yards, and airport runways.

The following are not considered regularly-used surfaces: paved bicycle pathways separated from and not subject to drainage from roads for motor vehicles, fenced fire lanes, and infrequently used maintenance access roads.

- ***Pollution-generating pervious surfaces (PGPS)*** - Any non-impervious surface subject to use of pesticides and fertilizers or loss of soil. Typical PGPS include lawns, landscaped areas, golf courses, parks, cemeteries, and sports fields.
- ***Pre-developed condition*** – The native vegetation and soils that existed at a site prior to the influence of Euro-American settlement. The pre-developed condition shall be assumed to be a forested land cover unless reasonable, historic information is provided that indicates the site was prairie prior to settlement.
- ***Project site*** - That portion of a property, properties, or right of way subject to land disturbing activities, new impervious surfaces, or replaced impervious surfaces.
- ***Receiving waters*** - Bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow.

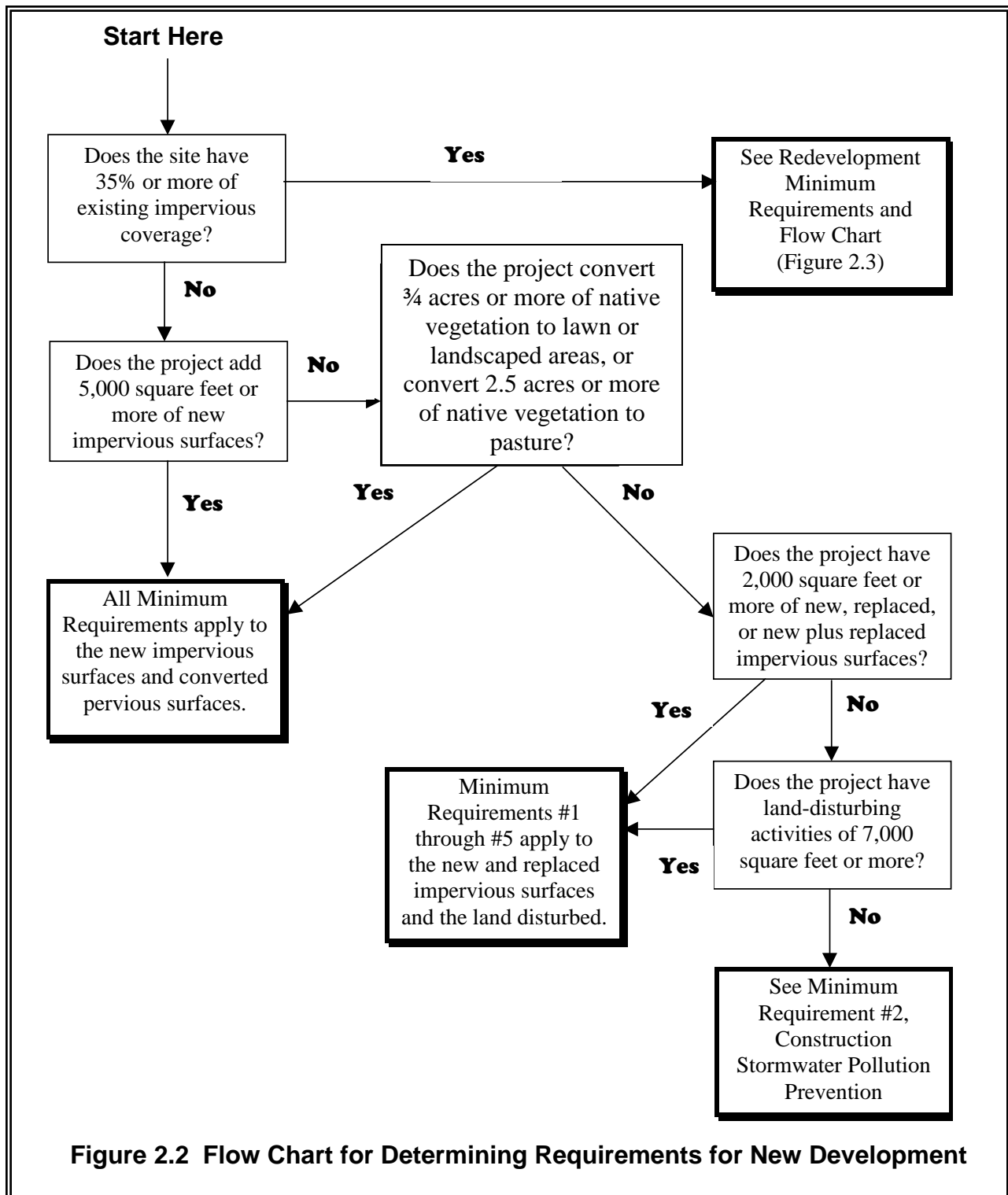
- **Redevelopment** - On a site that is already substantially developed (i.e., has 35% or more of existing impervious surface coverage), the creation or addition of impervious surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure;; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities.
- **Replaced impervious surface** - For structures, the removal and replacement of any exterior impervious surfaces or foundation. For other impervious surfaces, the removal down to bare soil or base course and replacement.
- **Site** – The area defined by the legal boundaries of a parcel or parcels of land that is (are) subject to new development or redevelopment. For road projects, the length of the project site and the right-of-way boundaries define the site.
- **Source control BMP** - A structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. This manual separates source control BMPs into two types. *Structural Source Control BMPs* are physical, structural, or mechanical devices, or facilities that are intended to prevent pollutants from entering stormwater. *Operational BMPs* are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV for details.

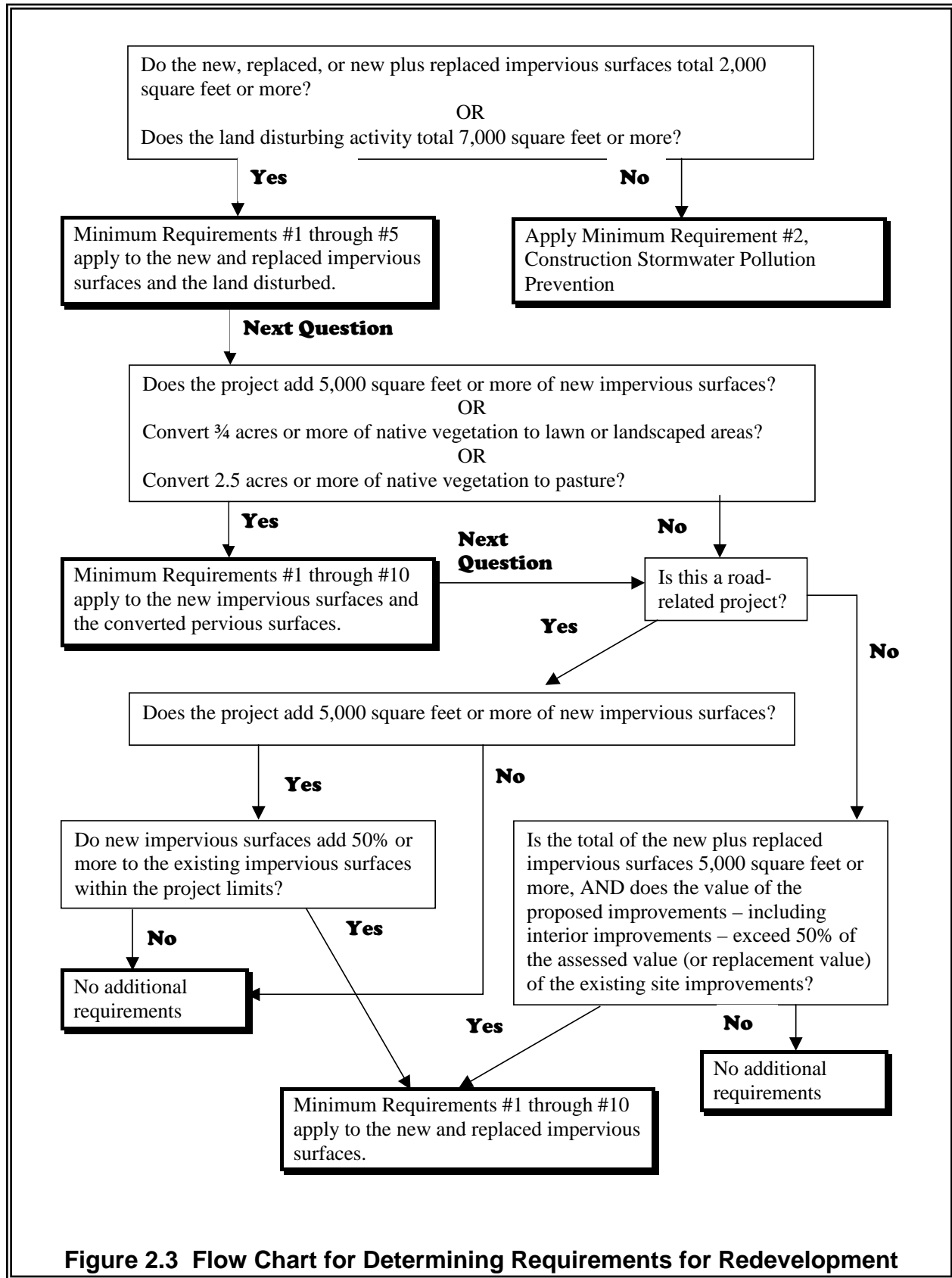
- **Threshold Discharge Area** - An onsite area draining to a single natural discharge location or multiple natural discharge locations that combine within one-quarter mile downstream (as determined by the shortest flowpath). The examples in Figure 2.1 below illustrate this definition. The purpose of this definition is to clarify how the thresholds of this manual are applied to project sites with multiple discharge points.



2.4 Applicability of the Minimum Requirements

Not all of the Minimum Requirements apply to every development or redevelopment project. The applicability varies depending on the type and size of the project. This section identifies thresholds that determine the applicability of the Minimum Requirements to different projects. The flow charts in Figures 2.2 and 2.3 can be used to determine which requirements apply. The Minimum Requirements themselves are presented in Section 2.5.





2.4.1 New Development

All new development shall be required to comply with Minimum Requirement #2.

The following new development shall comply with Minimum Requirements #1 through #5 for the new and replaced impervious surfaces and the land disturbed:

- **Creates or adds 2,000 square feet, or greater, of new, replaced, or new plus replaced impervious surface area, or**
- **Has land disturbing activity of 7,000 square feet or greater,**

The following new development shall comply with Minimum Requirements #1 through #10 for the new impervious surfaces and the converted pervious surfaces:

- **Creates or adds 5,000 square feet, or more, of new impervious surface area, or**
- **Converts $\frac{3}{4}$ acres, or more, of native vegetation to lawn or landscaped areas, or**
- **Converts 2.5 acres, or more, of native vegetation to pasture.**

2.4.2 Redevelopment

All redevelopment shall be required to comply with Minimum Requirement #2. In addition, all redevelopment that exceeds certain thresholds shall be required to comply with additional Minimum Requirements as follows.

The following redevelopment shall comply with Minimum Requirements #1 through #5 for the new and replaced impervious surfaces and the land disturbed:

- **The new, replaced, or total of *new plus replaced* impervious surfaces is 2,000 square feet or more, or**
- **7,000 square feet or more of land disturbing activities.**

The following redevelopment shall comply with Minimum Requirements #1 through #10 for the new impervious surfaces and converted pervious areas:

- **Adds 5,000 square feet or more of *new* impervious surfaces or,**
- **Converts $\frac{3}{4}$ acres, or more, of native vegetation to lawn or landscaped areas, or**

- **Converts 2.5 acres, or more, of native vegetation to pasture.**

If the runoff from the new impervious surfaces and converted pervious surfaces is not separated from runoff from other surfaces on the project site, the stormwater treatment facilities must be sized for the entire flow that is directed to them.

The local government may allow the Minimum Requirements to be met for an equivalent (flow and pollution characteristics) area within the same site. For public roads' projects, the equivalent area does not have to be within the project limits, but must drain to the same receiving water.

Additional Requirements for the Project Site

For road-related projects, runoff from the replaced and new impervious surfaces (including pavement, shoulders, curbs, and sidewalks) shall meet all the Minimum Requirements if the new impervious surfaces total 5,000 square feet or more and total 50% or more of the existing impervious surfaces within the project limits. The project limits shall be defined by the length of the project and the width of the right-of-way.

Other types of redevelopment projects shall comply with all the Minimum Requirements for the new and replaced impervious surfaces if the total of new plus replaced impervious surfaces is 5,000 square feet or more, and the valuation of proposed improvements – including interior improvements – exceeds 50% of the assessed value of the existing site improvements.

A local government may exempt or institute a stop-loss provision for redevelopment projects from compliance with Minimum Requirements for treatment, flow control, and wetlands protection as applied to the replaced impervious surfaces if the local government has adopted a plan and a schedule that fulfills those requirements in regional facilities.

2.5 Minimum Requirements

Minimum Requirement #1: Preparation of Stormwater Site Plans

All projects meeting the thresholds in Section 2.4 shall prepare a Stormwater Site Plan for local government review. Stormwater Site Plans shall be prepared in accordance with Chapter 3 of this volume.

Minimum Requirement #2: Construction Stormwater Pollution Prevention (SWPP)

All new development and redevelopment shall comply with Construction SWPP Elements #1 through #12 below.

Projects in which the new, replaced, or new plus replaced impervious surfaces total 2,000 square feet or more, or disturb 7,000 square feet or more of land must prepare a Construction SWPPP Plan (SWPPP) as part of the Stormwater Site Plan (see 2.5.1). Each of the twelve elements must be considered and included in the Construction SWPPP unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the narrative of the SWPPP.

Projects that add or replace less than 2,000 square feet of impervious surface or disturb less than 7,000 square feet of land are not required to prepare a Construction SWPPP, but must consider all of the twelve Elements of Construction Stormwater Pollution Prevention and develop controls for all elements that pertain to the project site.

Element 1: Mark Clearing Limits

- **Prior to beginning land disturbing activities, including clearing and grading, all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area shall be clearly marked, both in the field and on the plans, to prevent damage and offsite impacts.**
- **Plastic, metal, or stake wire fence may be used to mark the clearing limits.**
- **The duff layer, native top soil, and natural vegetation shall be retained in an undisturbed state to the maximum extent practicable. If it is not practicable to retain the duff layer in place, it should be stockpiled on-site, covered to prevent erosion, and replaced immediately upon completion of the ground disturbing activities.**

Element 2: Establish Construction Access

- **Construction vehicle access and exit shall be limited to one route, if possible, or two for linear projects such as roadways where more than one access is necessary for large equipment maneuvering.**
- **Access points shall be stabilized with a pad of quarry spalls or crushed rock prior to traffic leaving the construction site to minimize the tracking of sediment onto public roads.**
- **Wheel wash or tire baths should be located on-site, if applicable.**
- **If sediment is tracked off site, public roads shall be cleaned thoroughly at the end of each day, or more frequently during wet weather, if necessary to prevent sediment from entering waters of the state. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area. Street washing will be allowed only after sediment is removed in this manner.**
- **Street wash wastewater shall be controlled by pumping back on-site, or otherwise be prevented from discharging into systems tributary to state surface waters.**

Element 3: Control Flow Rates

- **Properties and waterways downstream from development sites shall be protected from erosion due to increases in the volume, velocity, and peak flow rate of stormwater runoff from the project site, as required by local plan approval authority.**
- **Downstream analysis is necessary if changes in flows could impair or alter conveyance systems, stream banks, bed sediment or aquatic habitat. See Chapter 3 for offsite analysis guidance.**
- **Where necessary to comply with Minimum Requirement #7, stormwater retention/detention facilities shall be constructed as one of the first steps in grading. Detention facilities shall be functional prior to construction of site improvements (e.g. impervious surfaces).**
- **The local permitting agency may require pond designs that provide additional or different stormwater flow control if necessary to address local conditions or to protect properties and waterways downstream from erosion due to increases in the volume, velocity, and peak flow rate of stormwater runoff from the project site.**
- **If permanent infiltration ponds are used for flow control during construction, these facilities should be protected from siltation during the construction phase.**

Element 4: Install Sediment Controls

- **Prior to leaving a construction site, or prior to discharge to an infiltration facility, stormwater runoff from disturbed areas shall pass through a sediment pond or other appropriate sediment removal BMP. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of Element #3, bullet #1. Full stabilization means concrete or asphalt paving; quarry spalls used as ditch lining; or the use of rolled erosion products, a bonded fiber matrix product, or vegetative cover in a manner that will fully prevent soil erosion. The Local Permitting Authority shall inspect and approve areas stabilized by means other than pavement or quarry spalls.**
- **Sediment ponds, vegetated buffer strips, sediment barriers or filters, dikes, and other BMPs intended to trap sediment on-site shall be constructed as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.**
- **Earthen structures such as dams, dikes, and diversions shall be seeded and mulched according to the timing indicated in Element #5.**
- **BMPs intended to trap sediment on site must be located in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages, often during non-storm events, in response to rain event changes in stream elevation or wetted area.**

Element 5: Stabilize Soils

- **All exposed and unworked soils shall be stabilized by application of effective BMPs that protect the soil from the erosive forces of raindrop impact and flowing water, and wind erosion.**
- **From October 1 through April 30, no soils shall remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days. This condition applies to all soils on site, whether at final grade or not. These time limits may be adjusted by the local permitting authority if it can be shown that the average time between storm events justifies a different standard.**
- **Soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.**

- **Applicable practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, plastic covering, soil application of polyacrylamide (PAM), the early application of gravel base on areas to be paved, and dust control.**
- **Soil stabilization measures selected should be appropriate for the time of year, site conditions, estimated duration of use, and potential water quality impacts that stabilization agents may have on downstream waters or ground water.**
- **Soil stockpiles must be stabilized from erosion, protected with sediment trapping measures, and when possible, be located away from storm drain inlets, waterways and drainage channels.**
- **Linear construction activities, including right-of-way and easement clearing, roadway development, pipelines, and trenching for utilities, shall be conducted to meet the soil stabilization requirement. Contractors shall install the bedding materials, roadbeds, structures, pipelines, or utilities and re-stabilize the disturbed soils so that:**
 - **from October 1 through April 30 no soils shall remain exposed and unworked for more than 2 days; and**
 - **from May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days.**

Element 6: Protect Slopes

- **Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion.**
- **Consider soil type and its potential for erosion.**
- **Reduce slope runoff velocities by reducing the continuous length of slope with terracing and diversions, reduce slope steepness, and roughen slope surface.**
- **Off-site stormwater (run-on) shall be diverted away from slopes and disturbed areas with interceptor dikes and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.**
- **At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion. Temporary pipe slope drains shall handle the peak flow from a 10 year, 24 hour event assuming a Type 1A rainfall distribution. Alternatively, the 10-year and 25-year, 1-hour flow rates indicated by an approved continuous runoff model, increased by a factor of 1.6, may be**

used. Consult the local drainage requirements for sizing permanent pipe slope drains.

- Provide drainage to remove ground water intersecting the slope surface of exposed soil areas.
- Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.
- Check dams shall be placed at regular intervals within channels that are cut down a slope.
- Stabilize soils on slopes, as specified in Element #5.

Element 7: Protect Drain Inlets

- All storm drain inlets made operable during construction shall be protected so that stormwater runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.
- All approach roads shall be kept clean. All sediment and street wash water shall not be allowed to enter storm drains without prior and adequate treatment unless treatment is provided before the storm drain discharges to waters of the State.
- Inlets should be inspected weekly at a minimum and daily during storm events. Inlet protection devices should be cleaned or removed and replaced when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

Element 8: Stabilize Channels and Outlets

- All temporary on-site conveyance channels shall be designed, constructed and stabilized to prevent erosion from the expected peak 10 minute velocity of flow from a Type 1A, 10- year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used.
- Stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream reaches shall be provided at the outlets of all conveyance systems.

Element 9: Control Pollutants

- All pollutants, including waste materials and demolition debris, that occur on-site shall be handled and disposed of in a manner that does not cause contamination of stormwater. Woody debris may be chopped and spread on site.
- Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products,

and non-inert wastes present on the site (see Chapter 173-304 WAC for the definition of inert waste). On-site fueling tanks shall include secondary containment.

- **Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Emergency repairs may be performed on-site using temporary plastic placed beneath and, if raining, over the vehicle.**
- **Wheel wash or tire bath wastewater, shall be discharged to a separate on-site treatment system or to the sanitary sewer.**
- **Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' recommendations for application rates and procedures shall be followed.**
- **BMPs shall be used to prevent or treat contamination of stormwater runoff by pH modifying sources. These sources include, but are not limited to, bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters. Stormwater discharges shall not cause or contribute to a violation of the water quality standard for pH in the receiving water.**
- **Construction sites with significant concrete work shall adjust the pH of stormwater if necessary to prevent violations of water quality standards.**

Element 10: Control De-Watering

- **Foundation, vault, and trench de-watering water, which has similar characteristics to stormwater runoff at the site, shall be discharged into a controlled conveyance system prior to discharge to a sediment trap or sediment pond. Channels must be stabilized, as specified in Element #8.**
- **Clean, non-turbid de-watering water, such as well-point ground water, can be discharged to systems tributary to state surface waters, as specified in Element #8, provided the de-watering flow does not cause erosion or flooding of receiving waters. These clean waters should not be routed through a stormwater sediment pond.**

- **Highly turbid or otherwise contaminated dewatering water, such as from construction equipment operation, clamshell digging, concrete tremie pour, or work inside a cofferdam, shall be handled separately from stormwater.**
- **Other disposal options, depending on site constraints, may include: 1) infiltration, 2) transport off-site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters, 3) Ecology-approved on-site chemical treatment or other suitable treatment technologies, 4) sanitary sewer discharge with local sewer district approval, if there is no other option, or 5) use of a sedimentation bag with outfall to a ditch or swale for small volumes of localized dewatering.**

Element 11: Maintain BMPs

- **All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. All maintenance and repair shall be conducted in accordance with BMP specifications.**
- **All temporary erosion and sediment control BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation shall be permanently stabilized.**

Element 12: Manage The Project

- **Phasing of Construction - Development projects shall be phased where feasible in order to prevent soil erosion and, to the maximum extent practicable, the transport of sediment from the site during construction. Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the clearing activities for any phase.**

Clearing and grading activities for developments shall be permitted only if conducted pursuant to an approved site development plan (e.g., subdivision approval) that establishes permitted areas of clearing, grading, cutting, and filling. When establishing these permitted clearing and grading areas, consideration should be given to minimizing removal of existing trees and minimizing disturbance/compaction of native soils except as needed for building purposes. These permitted clearing and grading areas and any other areas required to preserve critical or sensitive areas, buffers, native growth protection

easements, or tree retention areas as may be required by local jurisdictions, shall be delineated on the site plans and the development site.

- **Seasonal Work Limitations - From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the local permitting authority that silt-laden runoff will be prevented from leaving the site through a combination of the following:**
 1. **Site conditions including existing vegetative coverage, slope, soil type and proximity to receiving waters; and**
 2. **Limitations on activities and the extent of disturbed areas; and**
 3. **Proposed erosion and sediment control measures.**

Based on the information provided and/or local weather conditions, the local permitting authority may expand or restrict the seasonal limitation on site disturbance. The local permitting authority shall take enforcement action - such as a notice of violation, administrative order, penalty, or stop-work order under the following circumstances:

- **If, during the course of any construction activity or soil disturbance during the seasonal limitation period, sediment leaves the construction site causing a violation of the surface water quality standard; or**
- **If clearing and grading limits or erosion and sediment control measures shown in the approved plan are not maintained.**

The following activities are exempt from the seasonal clearing and grading limitations:

1. **Routine maintenance and necessary repair of erosion and sediment control BMPs;**
 2. **Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil; and**
 3. **Activities where there is one hundred percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.**
- **Coordination with Utilities and Other Contractors - The primary project proponent shall evaluate, with input from utilities and other contractors, the stormwater management requirements for**

the entire project, including the utilities, when preparing the Construction SWPPP.

Inspection and Monitoring - All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. The person must have the skills to 1) assess the site conditions and construction activities that could impact the quality of stormwater, and 2) assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

- **For construction sites one acre or larger that discharge stormwater to surface waters of the state, a Certified Erosion and Sediment Control Specialist shall be identified in the Construction SWPPP and shall be on-site or on-call at all times. Certification may be obtained through an approved training program that meets the erosion and sediment control training standards established by Ecology.**

Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

- **Maintaining an Updated Construction SWPPP - The Construction SWPPP shall be retained on-site or within reasonable access to the site.**

The SWPPP shall be modified whenever there is a significant change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

The SWPPP shall be modified, if during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven (7) calendar days following the inspection.

Minimum Requirement #3: Source Control of Pollution

All known, available and reasonable source control BMPs shall be applied to all projects. Source control BMPs shall be selected, designed, and maintained according to this manual.

Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

Natural drainage patterns shall be maintained, and discharges from the project site shall occur at the natural location, to the maximum extent practicable. The manner by which runoff is discharged from the project site must not cause a significant adverse impact to downstream receiving waters and downgradient properties. All outfalls require energy dissipation.

Minimum Requirement #5: On-site Stormwater Management

Projects shall employ On-site Stormwater Management BMPs to infiltrate, disperse, and retain stormwater runoff onsite to the maximum extent feasible without causing flooding or erosion impacts. Roof Downspout Control BMPs, functionally equivalent to those described in Chapter 3 of Volume III, and Dispersion and Soil Quality BMPs, functionally equivalent to those in Chapter 5 of Volume V, shall be required to reduce the hydrologic disruption of developed sites.

Minimum Requirement #6: Runoff Treatment

Thresholds

The following require construction of stormwater treatment facilities (see Table 2.1):

- Projects in which the total of effective, pollution-generating impervious surface (PGIS) is 5,000 square feet or more in a threshold discharge area of the project, or
- Projects in which the total of pollution-generating pervious surfaces (PGPS) is three-quarters (3/4) of an acre or more in a threshold discharge area, and from which there is a surface discharge in a natural or man-made conveyance system from the site.

Table 2.1 Treatment Requirements by Threshold Discharge Area

	< ¾ acres of PGPS	≥ ¾ acres PGPS	< 5,000 sf PGIS	≥ 5,000 sf PGIS
Treatment Facilities		✓		✓
Onsite Stormwater BMPs	✓	✓	✓	✓

PGPS = pollution-generating pervious surfaces

PGIS = pollution-generating impervious surfaces

sf = square feet

Treatment Facility Sizing

Water Quality Design Storm Volume: The volume of runoff predicted from a 24-hour storm with a 6-month return frequency (a.k.a., 6-month, 24-hour storm). Wetpool facilities are sized based upon the volume of runoff predicted through use of the Natural Resource Conservation Service curve number equations in Chapter 2 of Volume III, for the 6-month, 24-hour storm. Alternatively, the 91st percentile, 24-hour runoff volume indicated by an approved continuous runoff model may be used.

Water Quality Design Flow Rate:

- ***Preceding Detention Facilities or when Detention Facilities are not required:*** The flow rate at or below which 91% of the runoff volume, as estimated by an approved continuous runoff model, will be treated. Design criteria for treatment facilities are assigned to achieve the applicable performance goal at the water quality design flow rate (e.g., 80% TSS removal).
- ***Downstream of Detention Facilities:*** The full 2-year release rate from the detention facility.

Alternative methods can be used if they identify volumes and flow rates that are at least equivalent.

That portion of any development project in which the above PGIS or PGPS thresholds are not exceeded in a threshold discharge area shall apply On-site Stormwater Management BMPs in accordance with Minimum Requirement #5.

Treatment Facility Selection, Design, and Maintenance

Stormwater treatment facilities shall be:

- **selected in accordance with the process identified in Chapter 4 of Volume I,**
- **designed in accordance with the design criteria in Volume V, and**
- **maintained in accordance with the maintenance schedule in Volume V.**

Additional Requirements

Direct discharge of untreated stormwater from pollution-generating impervious surfaces to ground water is prohibited, except for the discharge achieved by infiltration or dispersion of runoff from residential sites through use of On-site Stormwater Management BMPs.

Minimum Requirement #7: Flow Control

Applicability

Projects must provide flow control to reduce the impacts of stormwater runoff from impervious surfaces and land cover conversions. The requirement below applies to projects that discharge stormwater directly, or indirectly through a conveyance system, into a fresh water - except for projects that discharge to a water in Appendix I-E - Flow Control-Exempt Receiving Waters in accordance with the following restrictions:

- **Direct discharge to the exempt receiving water does not result in the diversion of drainage from any perennial stream classified as Types 1, 2, 3, or 4 in the State of Washington Interim Water Typing System, or Types “S”, “F”, or “Np” in the Permanent Water Typing System, or from any category I, II, or III wetland; and**
- **Flow splitting devices or drainage BMP’s are applied to route natural runoff volumes from the project site to any downstream Type 5 stream or category IV wetland:**
 - **Design of flow splitting devices or drainage BMP’s will be based on continuous hydrologic modeling analysis. The design will assure that flows delivered to Type 5 stream reaches will approximate, but in no case exceed, durations ranging from 50% of the 2-year to the 50-year peak flow.**

- **Flow splitting devices or drainage BMP's that deliver flow to category IV wetlands will also be designed using continuous hydrologic modeling to preserve pre-project wetland hydrologic conditions unless specifically waived or exempted by regulatory agencies with permitting jurisdiction; and**
- **The project site must be drained by a conveyance system that is comprised entirely of manmade conveyance elements (e.g., pipes, ditches, outfall protection, etc.) and extends to the ordinary high water line of the exempt receiving water; and**
- **The conveyance system between the project site and the exempt receiving water shall have sufficient hydraulic capacity to convey discharges from future build-out conditions (under current zoning) of the site, and the existing condition from non-project areas from which runoff is or will be collected; and**
- **Any erodible elements of the manmade conveyance system must be adequately stabilized to prevent erosion under the conditions noted above.**

If the discharge is to a stream that leads to a wetland, or to a wetland that has an outflow to a stream, both this requirement and Minimum Requirement #8 apply.

Local governments may petition Ecology to exempt projects in additional areas. A petition must justify the proposed exemption based upon a hydrologic analysis that demonstrates that the potential stormwater runoff from the exempted area will not significantly increase the erosion forces on the stream channel nor have near field impacts.

Thresholds

The following require construction of flow control facilities and/or land use management BMPs that will achieve the standard requirement for western Washington (see Table 2.2):

- **Projects in which the total of effective impervious surfaces is 10,000 square feet or more in a threshold discharge area, or**
- **Projects that convert $\frac{3}{4}$ acres or more of native vegetation to lawn or landscape, or convert 2.5 acres or more of native vegetation to pasture in a threshold discharge area, and from which there is a surface discharge in a natural or man-made conveyance system from the site, or**

- Projects that through a combination of effective impervious surfaces and converted pervious surfaces cause a 0.1 cubic feet per second increase in the 100-year flow frequency from a threshold discharge area as estimated using the Western Washington Hydrology Model or other approved model.

That portion of any development project in which the above thresholds are not exceeded in a threshold discharge area shall apply Onsite Stormwater Management BMPs in accordance with Minimum Requirement #5.

Table 2.2 Flow Control Requirements by Threshold Discharge Area		
	Flow Control Facilities	On-site Stormwater Management BMPs
< ¾ acres conversion to lawn/landscape, or < 2.5 acres to pasture		✓
≥ ¾ acres conversion to lawn/landscape, or ≥ 2.5 acres to pasture	✓	✓
< 10,000 square feet of effective impervious area		✓
≥ 10,000 square feet of effective impervious area	✓	✓
≥ 0.1 cubic feet per second increase in the 100-year flood frequency	✓	✓

Standard Requirement

The following requirement applies to the geographic areas west of the Cascades, including all of the following counties:

Clallam	Jefferson	Pacific	Snohomish
Clark	King	Pierce	Thurston
Cowlitz	Kitsap	San Juan	Wahkiakum
Grays Harbor	Lewis	Skagit	Whatcom
Island	Mason	Skamania	

Stormwater discharges shall match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow. The pre-developed condition to be matched shall be a forested land cover unless:

1) reasonable, historic information is provided that indicates the site was prairie prior to settlement (modeled as “pasture” in the Western Washington Hydrology Model); or,

2) the drainage area of the immediate stream and all subsequent downstream basins have had at least 40% total impervious area since 1985. In this case, the pre-developed condition to be matched shall be the existing land cover condition. Where basin-specific studies determine a stream channel to be unstable, even though the above criterion is met, the pre-developed condition assumption shall be the “historic” land cover condition, or a land cover condition commensurate with achieving a target flow regime identified by an approved basin study.

This standard requirement is waived for sites that will reliably infiltrate all the runoff from impervious surfaces and converted pervious surfaces.

Western Washington Alternative Requirement

An alternative requirement may be established through application of watershed-scale hydrological modeling and supporting field observations. Possible reasons for an alternative flow control requirement include:

- Establishment of a stream-specific threshold of significant bedload movement other than the assumed 50% of the 2-year peak flow;
- Zoning and Land Clearing Ordinance restrictions that, in combination with an alternative flow control standard, maintain or reduce the naturally occurring erosive forces on the stream channel; or
- A duration control standard is not necessary for protection, maintenance, or restoration of designated beneficial uses or Clean Water Act compliance.

Additional Requirement

Flow Control BMPs shall be selected, designed, and maintained according to a local government manual deemed equivalent to this manual.

Minimum Requirement #8: Wetlands Protection

Applicability

The requirements below apply only to projects whose stormwater discharges into a wetland, either directly or indirectly through a conveyance system. These requirements must be met in addition to meeting Minimum Requirement #6, Runoff Treatment.

Thresholds

The thresholds identified in Minimum Requirement #6 – Runoff Treatment, and Minimum Requirement #7 – Flow Control shall also be applied for discharges to wetlands.

Standard Requirement

Discharges to wetlands shall maintain the hydrologic conditions, hydrophytic vegetation, and substrate characteristics necessary to support existing and designated uses. The hydrologic analysis shall use the existing land cover condition to determine the existing hydrologic conditions unless directed otherwise by a regulatory agency with jurisdiction. A wetland can be considered for hydrologic modification and/or stormwater treatment in accordance with Guide Sheet 1B in Appendix I-D.

Additional Requirements

The standard requirement does not excuse any discharge from the obligation to apply whatever technology is necessary to comply with state water quality standards, Chapter 173-201A WAC, or state ground water standards, Chapter 173-200 WAC. Additional treatment requirements to meet those standards may be required by federal, state, or local governments.

Stormwater treatment and flow control facilities shall not be built within a natural vegetated buffer, except for:

- necessary conveyance systems as approved by the local government; or
- as allowed in wetlands approved for hydrologic modification and/or treatment in accordance with Guidesheet 1B.

An adopted and implemented basin plan (Minimum Requirement #9), or a Total Maximum Daily Load (TMDL, also known as a Water Clean-up Plan) may be used to develop requirements for wetlands that are tailored to a specific basin.

Minimum Requirement #9: Basin/Watershed Planning

Projects may be subject to equivalent or more stringent minimum requirements for erosion control, source control, treatment, and operation and maintenance, and alternative requirements for flow control and wetlands hydrologic control as identified in Basin/Watershed Plans. Basin/Watershed plans shall evaluate and include, as necessary, retrofitting urban stormwater BMPs into existing development and/or redevelopment in order to achieve watershed-wide pollutant reduction and flow control goals that are consistent with requirements of the federal Clean Water Act. Standards developed from basin plans shall not modify any of the above minimum requirements until the basin plan is formally adopted and implemented by the local governments within the basin, and approved or concurred with by Ecology.

Minimum Requirement #10: Operation and Maintenance

An operation and maintenance manual that is consistent with the provisions in Volume V of this manual shall be provided for all proposed stormwater facilities and BMPs, and the party (or parties) responsible for maintenance and operation shall be identified. At private facilities, a copy of the manual shall be retained onsite or within reasonable access to the site, and shall be transferred with the property to the new owner. For public facilities, a copy of the manual shall be retained in the appropriate department. A log of maintenance activity that indicates what actions were taken shall be kept and be available for inspection by the local government.

2.7 Adjustments

Adjustments to the Minimum Requirements may be granted prior to permit approval and construction. The drainage manual administrator of the local government may grant an adjustment provided that a written finding of fact is prepared, that addresses the following:

- The adjustment provides substantially equivalent environmental protection.
- The objectives of safety, function, environmental protection and facility maintenance, based upon sound engineering, are met.

2.8 Exceptions/Variations

Exceptions to the Minimum Requirements may be granted prior to permit approval and construction. The drainage manual administrator of the local government may grant an exception following legal public notice of an application for an exception, legal public notice of the administrator's decision on the application, and a written finding of fact that documents the following:

- There are special physical circumstances or conditions affecting the property such that the strict application of these provisions would deprive the applicant of all reasonable use of the parcel of land in question, and every effort to find creative ways to meet the intent of the Minimum Requirements has been made; and**
- That the granting of the exception will not be detrimental to the public health and welfare, nor injurious to other properties in the vicinity and/or downstream, and to the quality of waters of the state; and**
- The exception is the least possible exception that could be granted to comply with the intent of the Minimum Requirements.**